DOCUMENT RESUME

ED 345 412 EC 301 172

AUTHOR Donders, Jacques
TITLE Academic Placement after Traumatic Brain Injury.
PUB DATE Feb 92
NOTE 5p.; Paper presented at the Annual Meeting of the International Neuropsychological Society (20th, San Diego, CA, February 5-8, 1992).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Academic Achievement; Elementary Secondary Education; *Head Injuries; Intelligence Quotient; *Mainstreaming; Medical Evaluation; *Neurological Impairments; Special Education; *Student Placement

ABSTRACT

The acadmic placement of 87 children (ages 6 to 16 years) who had sustained brain injuries was determined within 1 year after initial psychological assessment. Forty-five children had returned full time to regular academic programs, 21 children received special education support for less than half of their classes, and 21 children were enrolled in special education classes for more than half of their time. The predictive power of various medical history variables with regard to school reentry was evaluated by means of stepwise discriminant analysis. Verbal IQ at initial post-injury assessment, diffuse cerebral edema, and skull fracture on initial CT scan appeared to be the most important factors with regard to school placement within the first year. These factors explained, respectively, 47 percent, 14 percent, and 8 percent of the variance. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ACADEMIC PLACEMENT AFTER TRAUMATIC BRAIN INJURY

Jacques Donders, Ph.D.

Mary Free Bed Hospital

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED345412

SUMMARY

THE ACADEMIC PLACEMENT OF 87 SIX- TO SIXTEEN-YEAR-OLD CHILDREN WHO HAD SUSTAINED BRAIN INJURIES WAS DETERMINED WITHIN ONE YEAR AFTER INITIAL PSYCHOLOGICAL ASSESSMENT. 45 CHILDREN HAD RETURNED FULL-TIME TO REGULAR ACADEMIC PROGRAMS, 21 CHILDREN RECEIVED SPECIAL EDUCATION SUPPORT FOR <50% OF THEIR CLASSES, AND 21 CHILDREN WERE ENROLLED IN SPECIAL EDUCATION CLASSES FOR >50% OF THEIR TIME. THE PREDICTIVE POWER OF VARIOUS MEDICAL HISTORY VARIABLES WITH REGARD TO SCHOOL RE-ENTRY WAS EVALUATED BY MEANS OF STEPWISE DISCRIMINANT ANALYSIS. VERBAL IQ AT INITIAL POST-INJURY ASSESSMENT, DIFFUSE CEREBRAL EDEMA AND SKULL FRACTURE ON INITIAL CT SCAN APPEARED TO BE THE MOST IMPORTANT FACTORS WITH REGARD TO SCHOOL PLACEMENT WITHIN THE FIRST YEAR. THESE FACTORS EXPLAINED, RESPECTIVELY, 47%, 14%, AND 8% OF THE VARIANCE. IMPLICATIONS ARE DISCUSSED.

EC 301172

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Jacques Donders

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

PROCEDURE

87 6-16 YEAR-OLD SUBJECTS WITH TRAUMATIC BRAIN INJURY (TBI) WITH DOCUMENTED LOSS OF CONSCIOUSNESS WERE TAKEN FROM A 30-MONTH SERIES OF CONSECUTIVE REHABILITATION REFERRALS. ALL SUBJECTS HAD BEEN ENROLLED IN FORMAL EDUCATION FOR AT LEAST 6 MONTHS PRIOR TO INJURY AND HAD COMPLETED A NEUROPSYCHOLOGICAL EVALUATION PRIOR TO RETURN TO SCHOOL. NONE OF THE SUBJECTS HAD A PRIOR PSYCHIATRIC OR NEUROLOGICAL HISTORY. PATIENT CHARACTERISTICS ARE PRESENTED IN TABLE 1.

FOLLOW-UP DATA WITH REGARD TO SCHOOL STATUS WERE THEN OBTAINED NO SOONER THAN 4 MONTHS AND NO LATER THAN 11 MONTHS AFTER NEUROPSYCHOLOGICAL EVALUATION (M=6.59, SD=1.78). SCHOOL STATUS AT FOLLOW-UP WAS CLASSIFIED AS FOLLOWS: GROUP **FULL REG** (N=45) SUBJECTS WERE ENROLLED FULL-TIME IN REGULAR EDUCATION; GROUP **MAIN REG** (N=21) INCLUDED SUBJECTS WHO WERE IN REGULAR EDUCATION >50% OF THEIR TIME, SUPPLEMENTED BY SPECIAL EDUCATION SUPPORT (RESOURCE ROOM, TEACHER CONSULTANT, TUTOR); AND GROUP **MAIN SPEC** (N=21) SUBJECTS WERE ENROLLED IN SPECIAL EDUCATION >50% OF THEIR TIME.

STEPWISE DISCRIMINANT ANALYSIS WITH BACKWARD ELIMINATION WAS USED TO DETERMINE WHICH VARIABLES OPTIMALLY DISCRIMINATED BETWEEN THE FULL REG, MAIN REG, AND MAIN SPEC GROUPS AT FOLLOW-UP. VARIABLES INCLUDED IN THIS ANALYSIS WERE PATIENT AGE, PREMORBID ACADEMIC PLACEMENT (REGULAR VS. SPECIAL), LENGTH OF COMA, INTRA-CEREBRAL DIFFUSE LESION (E.G., EDEMA), INTRA-CEREBRAL FOCAL LESION (E.G., HEMORRHAGE), SKULL FRACTURE, VERBAL IQ, AND PERFORMANCE IQ. THE RESULTING BEST DISCRIMINATION MODEL (RESTRICTED TO VARIABLES THAT WERE SIGNIFICANT AT THE .05 LEVEL) IS PRESENTED IN TABLE 2, AND PATIENT DATA FOR THE MODEL'S VARIABLES ARE PRESENTED IN TABLE 3.

RESULTS & DISCUSSION

THE BEST DISCRIMINATION MODEL CORRECTLY CLASSIFIED 74% OF THE SUBJECTS. PRESENCE OF EITHER A SKULL FRACTURE OR DIFFUSE EDEMA WERE ASSOCIATED WITH AN INCREASED LIKELIHOOD OF NEED FOR SPECIAL EDUCATION SUPPORT WITHIN THE FIRST YEAR AFTER ASSESSMENT. HOWEVER, VERBAL IQ WAS THE VARIABLE THAT CLEARLY EXPLAINED THE LARGEST AMOUNT OF VARIANCE: THE HIGHER VIQ AFTER INJURY BUT BEFORE SCHOOL RE-ENTRY, THE MORE LIKELY THE CHILD WAS TO RETURN PRIMARILY TO REGULAR EDUCATION CLASSES. AT THE TIME, OTHER STUDIES HAVE REPORTED THAT T.B.I. AFFECTS PIQ MORE THAN VIQ. THE CURRENT RESULTS SUGGEST THAT SHORT-TERM SCHOOL RE-ENTRY MAY BE RELATED TO EITHER THE RE-EMERGENCE OF OVERLEARNED SKILLS AND/OR THE OPPORTUNITY TO USE VERBALLY-BASED COMPENSATORY STRATEGIES TO CIRCUMVENT COGNITIVE DEFICITS.

TABLE 1. PATIENT CHARACTERISTICS

VARIABLE	NATURE	%	*M*	*SD*
ETHNICITY:	AFRICAN-AMERICAN	8		
	CAUCASIAN	85		
	HISPANIC	7		
GENDER:	FEMALE	35		
	MALE	65		
S.E.S.:	LOW	13		
	LOWER MIDDLE	55		
	UPPER MIDDLE	24		
	HIGH	8		
AGE:	MONTHS		145.63	32.27
PREMORBID SCHOOL:	REGULAR EDUCATION	94		
	SPECIAL EDUCATION	6		
CAUSE OF T.B.I.:	M.V.A. PASSENGER	43		
	M.V.A. - PEDESTRIAN	19		
	M.V.A. - BICYCLE	14		
	FALLS & RECREATION	19		
	OTHER	5		
INITIAL G.C.S.	SEVERE (<9)	53		
	MODERATE (9-12)	30		
	MILD (>12)	17		
COMA	DAYS		3.41	8.51
CT/MRI SCAN:	SKULL FRACTURE	30		
	DIFFUSE LESION	81		
	FOCAL LESION	29		
WISC-R:	VERBAL IQ		91.51	16.45
	PERFORMANCE IQ		88.56	18.47

TABLE 2. BEST DISCRIMINATION MODEL

GROUP	PARTIAL R^2	*F*	*P*
DIFFUSE LESION	.14	6.49	.003
SKULL FRACTURE	.08	3.72	.03
VERBAL IQ	.47	35.88	.0001

TABLE 3. DISCRIMINATION VARIABLES PER GROUP

VARIABLE	DIFFUSE LESION (%)	SKULL FRACTURE (%)	VERBAL IQ *M*	VERBAL IQ *SD*
FULL REG	70	38	100.29	11.86
MAIN REG	91	14	90.76	8.41
MAIN SPEC	95	29	73.43	16.31